

CLAIMS

1. Fiber laser unit comprising a plurality of fiber lasers that generate laser beams by exciting a laser active substance inside cores by exciting light, propagate the laser beams inside the cores and output from the ends thereof, wherein

each of the fiber lasers has a resonator structure that reflects a laser beam on both ends, and

the cores of the fiber lasers are made proximal to each other at a part, and by using a laser beam outputted from the inside of the core of an arbitrary fiber laser, injection synchronization is carried out inside resonators of other fiber lasers.

2. The fiber laser unit according to Claim 1, wherein

each of the fiber lasers has a structure in which a part of the cores is reduced in diameter, and the cores are made proximal to each other at the core diameter reduced portion.

3. The fiber laser unit according to Claim 2, wherein the diameter reduced portion and the proximity portion are formed by an optical fiber coupler.

4. The fiber laser unit according to any one of Claims 1 through 3, wherein, among the plurality of fiber lasers, a loss is applied to ports of the fiber lasers except for one fiber laser.